# Monthly Performance Measures

May 2019

MDOT'S MISSION
Providing the highest quality integrated transportation services for economic benefit and improved quality of life.

Statewide TOC

Statewide TOC

West Michigan TOC

⊙ Blue Water Bridge

Southeast Michigan TOC

West Michigan Traffic Operations Center

The WMTOC focuses on MDOT's goals of incident management, crash reduction, customer information, and congestion reduction. The Traffic Operations Centers (TOC) provide motorists and businesses with real-time traffic information, and partner with emergency response agencies to provide improved response services to traffic crashes – saving lives, time, and money.

The WMTOC has camera/device coverage on approximately 53 freeway miles and 22 non-freeway trunkline miles in the greater Grand Rapids area and Grand Haven.
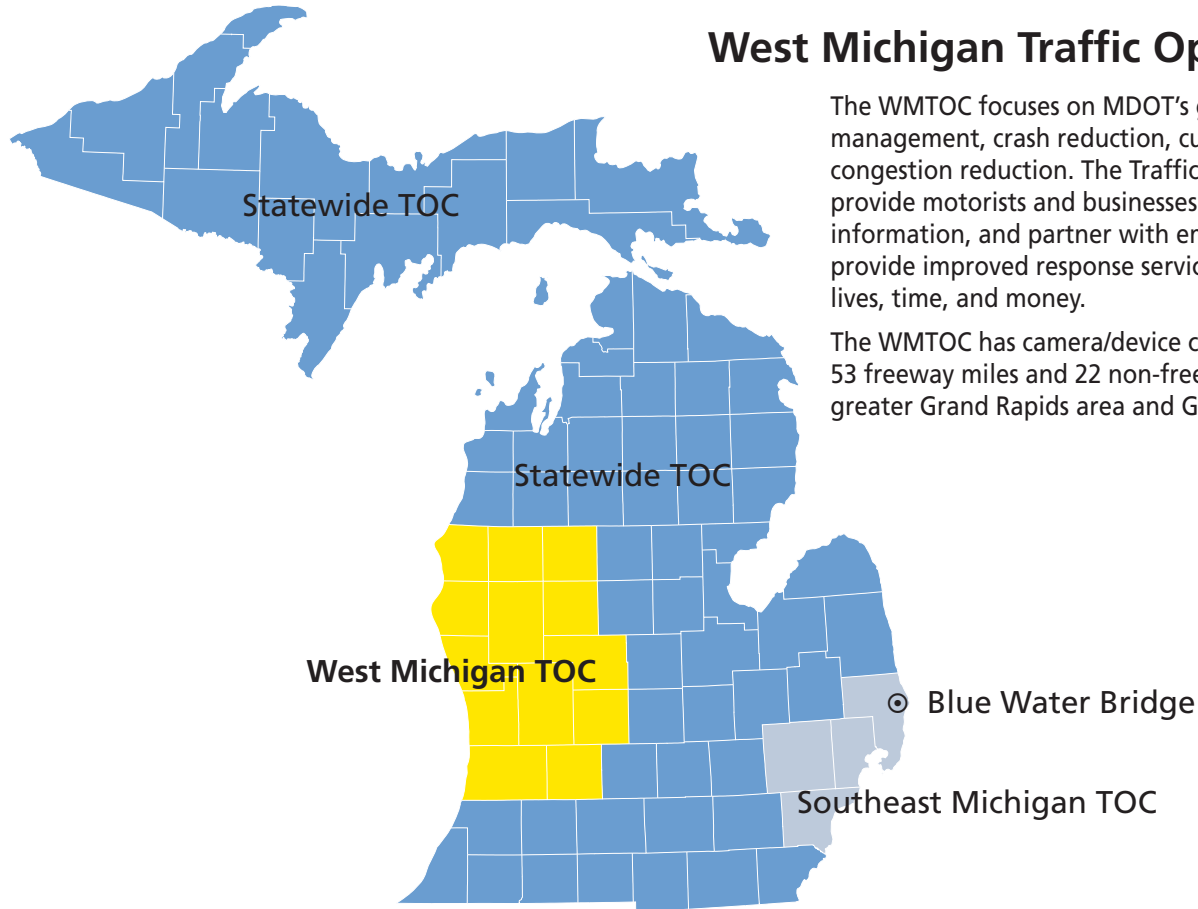
May 2019 Spotlight

Amway Riverbank Run

The 42nd Annual Amway Riverbank Run took place on Saturday, May 11. The run is the country's largest 25K road race and is also the site of the USA 25K Open Championships. Other races held included a 5K run, a 10K run, a 25K handcycle race, a 25K wheelchair race, and a 5K community walk. More than 17,000 racers, 40,000 spectators, and 2,000 volunteers came to downtown Grand Rapids for this event. The WMTOC Control Room was staffed during the event to monitor traffic and provide messages for freeway ramp closures.

Flooding in Whitehall

US-31 Business Route was closed at Thompson Road in Whitehall due to flooding. The road was closed for three days to allow 12 inches of water covering all four lanes of the roadway to recede. Local officials were citing the brutal winter and heavy spring rains as the cause of the flooding. The Michigan Department of Transportation suspected that the near record-high water levels on Lake Michigan were pushing water back to White Lake, causing it to spill over the banks. The WMTOC monitored the flooding situation and provided motorist information via e-mail, Twitter, tweet, and Mi Drive throughout the closure.

Events by Type

Figure 1 shows events by type.

Event: An occurrence within the transportation operations center (TOC) coverage area that requires action or tracking.

Unplanned Events: An incident or other uncontrollable event that directly affects a Michigan Department of Transportation (MDOT) roadway. Unplanned events include Incidents (crashes, disabled vehicles and debris in the roadway) and other events (weather, congestion, and unclassified).

Planned Events: Events that are scheduled. These include construction, maintenance, and special events.

Of the **186** total events this month, **102 (55 percent)** were classified as **Incidents**.

Construction season in Michigan began in April. With the beginning of this season, MDOT deployed several temporary portable changeable message signs (PCMS). This month there were **2,324** auto responses. Auto response events are created automatically based on slower than normal speeds for a period of time. Speeds are detected by several sources and the traffic management software sends pre-determined messages to dynamic message signs (DMS) and PCMS to alert motorists about traffic conditions ahead.
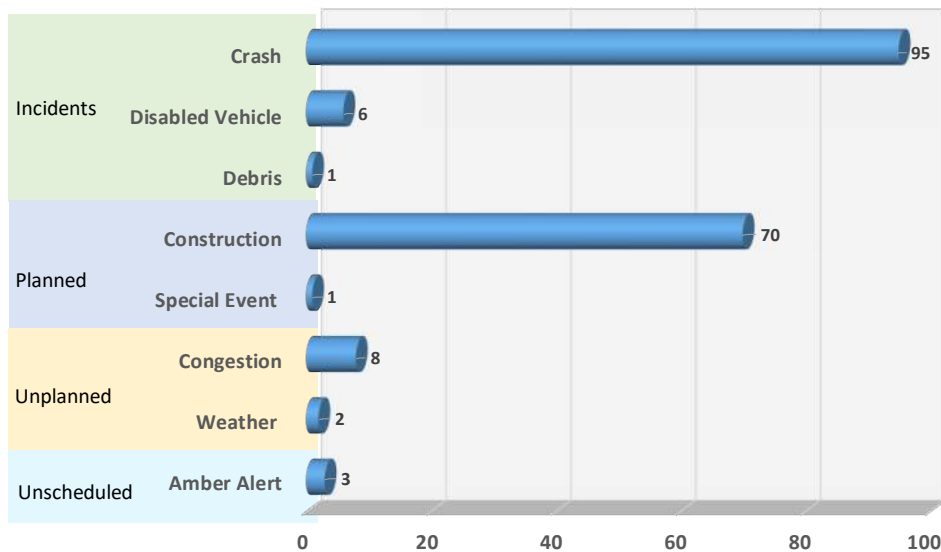

Figure 1

Incidents by Detection Source

Figure 2 provides information on detection sources.

Control room operators (CRO) rely on various sources to detect incidents that occur along the freeways. Noting the source ensures that the incident was detected by a reliable source and provides insight on which sources provide the most information.
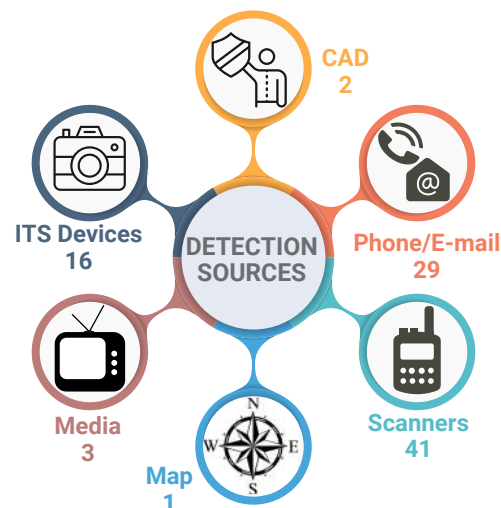

DETECTION SOURCES

CAD 2
Phone/E-mail 29
Scanners 41
Map 1
Media 3
ITS Devices 16

Figure 2

Communication

Figure 3 shows communications displayed by type that are managed by CROs.

WMTOC tracks all incoming and outgoing communications to the control room. This includes phone calls, e-mails sent and received, and notifications sent to stakeholders.

CROs managed **1,367** communications this month. Of those communications, **857 (63 percent)** were e-mails, including notifications, and **510 (37 percent)** were phone calls.

The largest number of communications is with MDOT staff, which includes traffic operations, construction, maintenance, county road commission personnel, and other MDOT personnel.
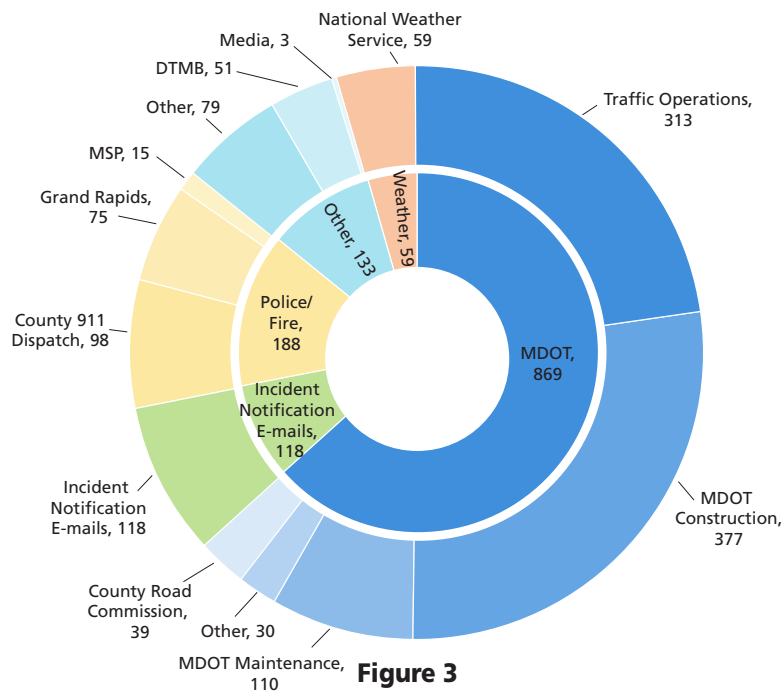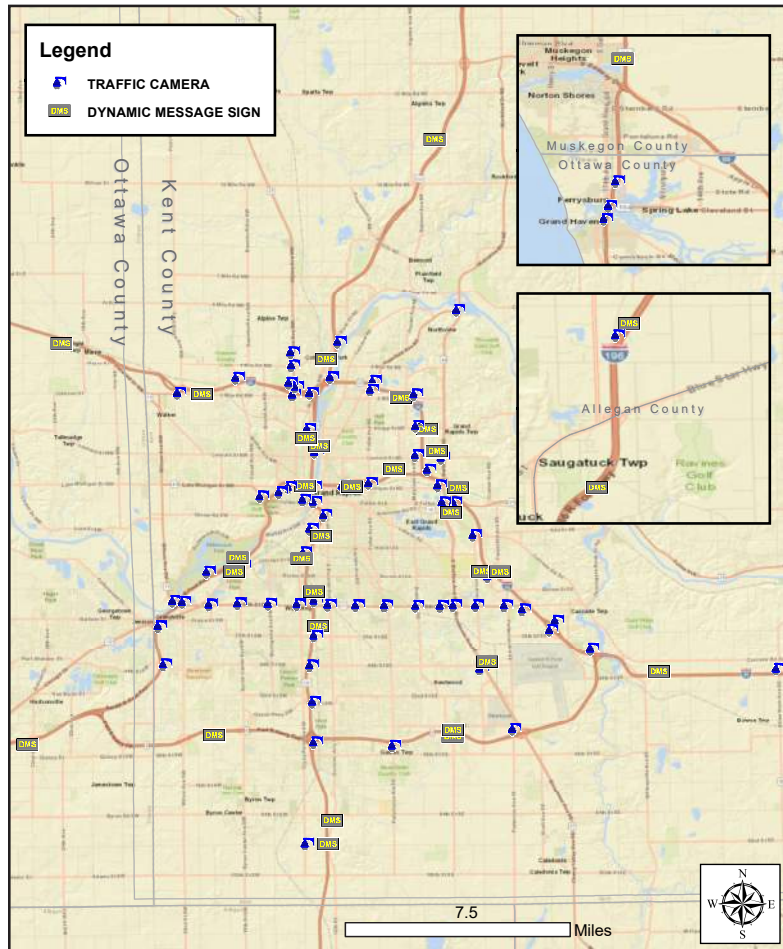

Figure 3

Device Locations

Legend
- TRAFFIC CAMERA
- DMS DYNAMIC MESSAGE SIGN

7.5 Miles

DMS Messages by Type

There were **161** "unique messages" displayed throughout the intelligent transportation systems network this month, as shown in **Figure 4**.

"Unique messages" include incidents, special events, congestion, weather, construction, or AMBER alerts.

Travel time messages are routinely displayed when unique messages are not active. Travel times are updated every three minutes.

Unique Messages

CONSTRUCTION 88	WEATHER 1	CONGESTION 5
INCIDENT 63	SPECIAL EVENTS 1	AMBER ALERT 3

Figure 4

Field Device Availability

The WMTOC tracks the availability of all system devices so that timely maintenance can occur. Reliability of the devices ensures that the operators have tools available to accurately provide traffic conditions to the motoring public. **Table 1** shows field device availability for this month.

Device Type	Number of Devices	Percent Available
Cameras	71	99%
DMS	33	96%
Microwave vehicle detection system	132	60%
Table 1		

Work Zone Activities

The WMTOC provides support for the transportation service centers (TSC) in the Grand Region during the construction season. Staff review entries for the region to ensure the information posted on Mi Drive is accurate and concise, and continually monitor work zone activities when possible with the ITS devices available. Operators also provide reports for MDOT projects to assist with coordination efforts throughout the region. **Figure 5** shows the total number of events entered for each TSC and the number of events for which the WMTOC provided direct support.
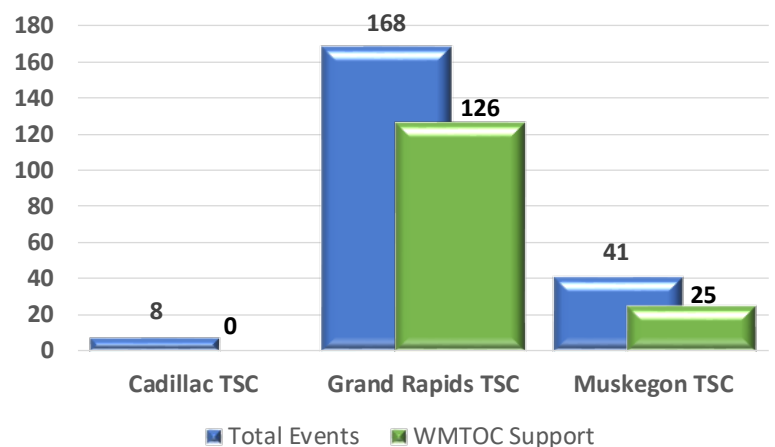

Cadillac TSC: Total Events 8, WMTOC Support 0
Grand Rapids TSC: Total Events 168, WMTOC Support 126
Muskegon TSC: Total Events 41, WMTOC Support 25

■ Total Events ■ WMTOC Support

Figure 5

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Incident Management

Incidents on Key Routes

Table 2 indicates that **US-131** had the highest total number of incidents and the highest per mile rate in May. **I-96** had the longest incident duration for the month. The table shows incidents for high-volume roadways in the Grand Region.

Route	Miles	May 2019			May 2018			Previous 12-month Avg.		
		Total Incidents	Incidents Per Mile	Average Duration	Total Incidents	Incidents Per Mile	Average Duration	Total Incidents	Incidents Per Mile	Average Duration
I-96, US-31 to M-50	52	16	0.3	1:09	12	0.2	0:38	18.3	0.4	0:56
I-196, Blue Star Hwy to I-96	40	15	0.4	1:13	12	0.3	0:56	27.4	0.7	0:45
US-131, 84th St to Rockford Rest Area	24.5	53	2.2	0:54	53	2.2	0:38	56.9	2.3	0:46
US-31, I-96 to M-120	8	0	0.0	0	5	0.6	2:07	5.9	0.7	1:15
M-6, I-196 to I-96	19	5	0.3	0:56	3	0.2	1:10	3.1	0.2	0:55
M-11, I-196 to I-96	11.5	1	0.1	1:05	2	0.2	0:14	1.3	0.1	0:40
M-37/M-44, M-6 to West River Dr	15.5	4	0.3	1:05	5	0.3	0:33	3.3	0.2	0:44

Table 2

Table Key | Increase | No Change | Decrease | Data is compared to the same month of the previous year.

Total Unplanned Incidents

There were **102** total unplanned incidents this month; **72 percent** of these were high-impact incidents. A high-impact incident is one that results in a total freeway closure, a ramp closure, or a lane closure.

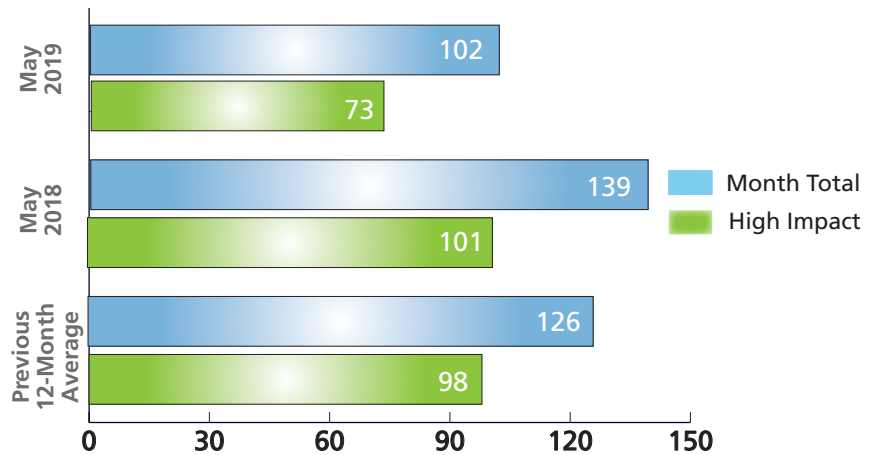Incident information is shown in **Figure 6**.

Figure 6

High-Impact Incidents

Seventy-three percent of high-impact incidents this month occurred along **US-131**. For most high-impact incidents, CROs provide e-mail notifications to stakeholders in the affected area. The notification includes the location of the incident, the degree of closure, the reason for the closure, and any other pertinent information related to traffic operations. See **Table 3**.

Closure Type	May 2019	May 2018	Previous 12 - Month Avg
Freeway Closure	9	11	16.1
Lane Closure	64	90	81.8
Ramp Closure	0	0	0.0
Total	73	101	97.9

Table 3

Work Zone-Related Events

There were **2 incidents** identified by operators as being related to work zones during this month.

Top Duration Incidents

The longest-duration incident this month occurred on **M-121 at 80th Avenue,** which lasted **6 hours, 37 minutes**. The average incident duration for May was **68 minutes**. See **Table 4.**

Location	Date	Duration	Details
M-121 at 80th Avenue	May 9	6:37	Crash
US-131 after 84th Street	May 6	4:49	Crash
US-131 after Hall Street	May 25	4:14	Crash
M-120 at 4th Street	May 10	4:12	Crash
I-96 at 68th Avenue	May 18	3:38	Crash
Table 4			

Total Incidents per Weekday Hour

The WMTOC operates 24 hours per day, 7 days per week. The WMTOC is staffed locally during peak traffic hours, typically 6 a.m. to 8 p.m. Operations are transferred to the Statewide Transportation Operations Center during off-peak hours.

During the month of May, **3 p.m.** had the largest hourly number of incidents. Historically, **8 a.m.** has the greatest number of incidents in the Grand Region. **Figure 7** shows **incidents** for weekdays for this month.
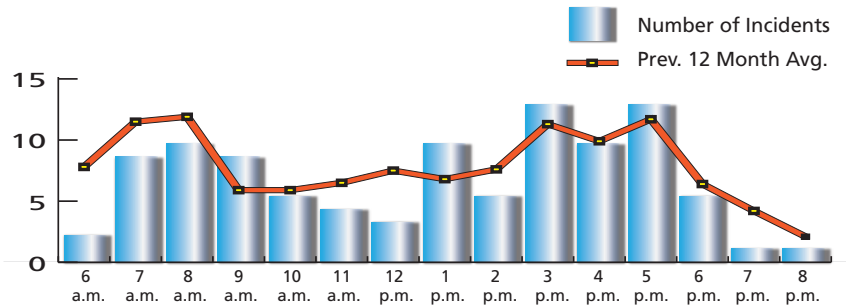

Figure 7

Incident and Roadway Clearance Times

MDOT shares a goal with local first responders to clear incidents from the roadway as quickly as possible. Reducing overall incident clearance times limits the risk to travelers and responders on scene. Effective response and clearance improves safety for motorists as well as first responders. MDOT's goal is to minimize delays caused by incidents as well as the occurrences of secondary incidents.

Roadway clearance time: The time between the awareness of an incident and confirmation that all lanes are open to traffic.

Incident clearance time: The time between the awareness of an incident and when all involved vehicles are removed from the scene.

Figure 8 shows a breakdown of the number of incidents in each time to clear bracket. **Figure 9** illustrates the average roadway and incident clearance times for the month.
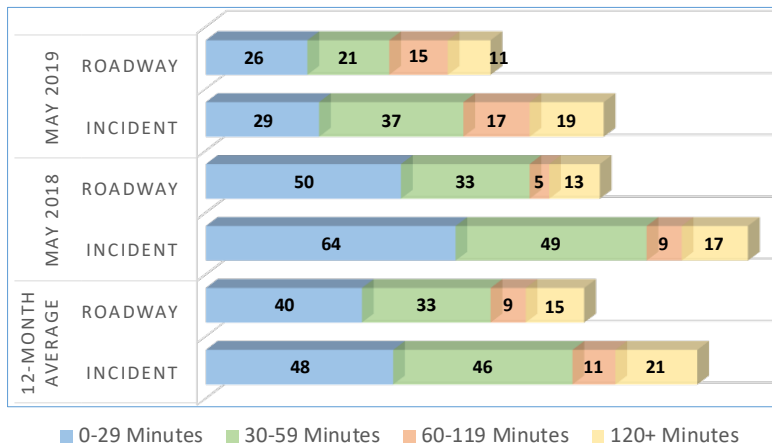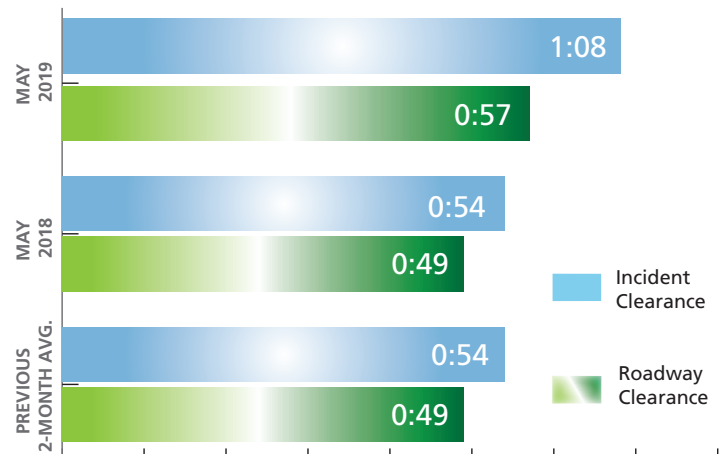

Figure 8

Figure 9

Secondary Crashes

Out of the **95** total crashes this month, **0 percent** were **Secondary Crashes** as observed by WMTOC CROs.

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Crash Hot Spot and Most Used DMS Activity

Figure 10 shows areas where the greatest number of crashes occurred in the reported month. The shading starts with green for fewer crashes, then transitions to yellow for a moderate number of crashes, and finally to red for the highest number of crashes based on the total crashes that occurred. The top five most used DMS are also depicted on the map. The direct correlation can be seen between the areas of most crashes to DMS utilization.
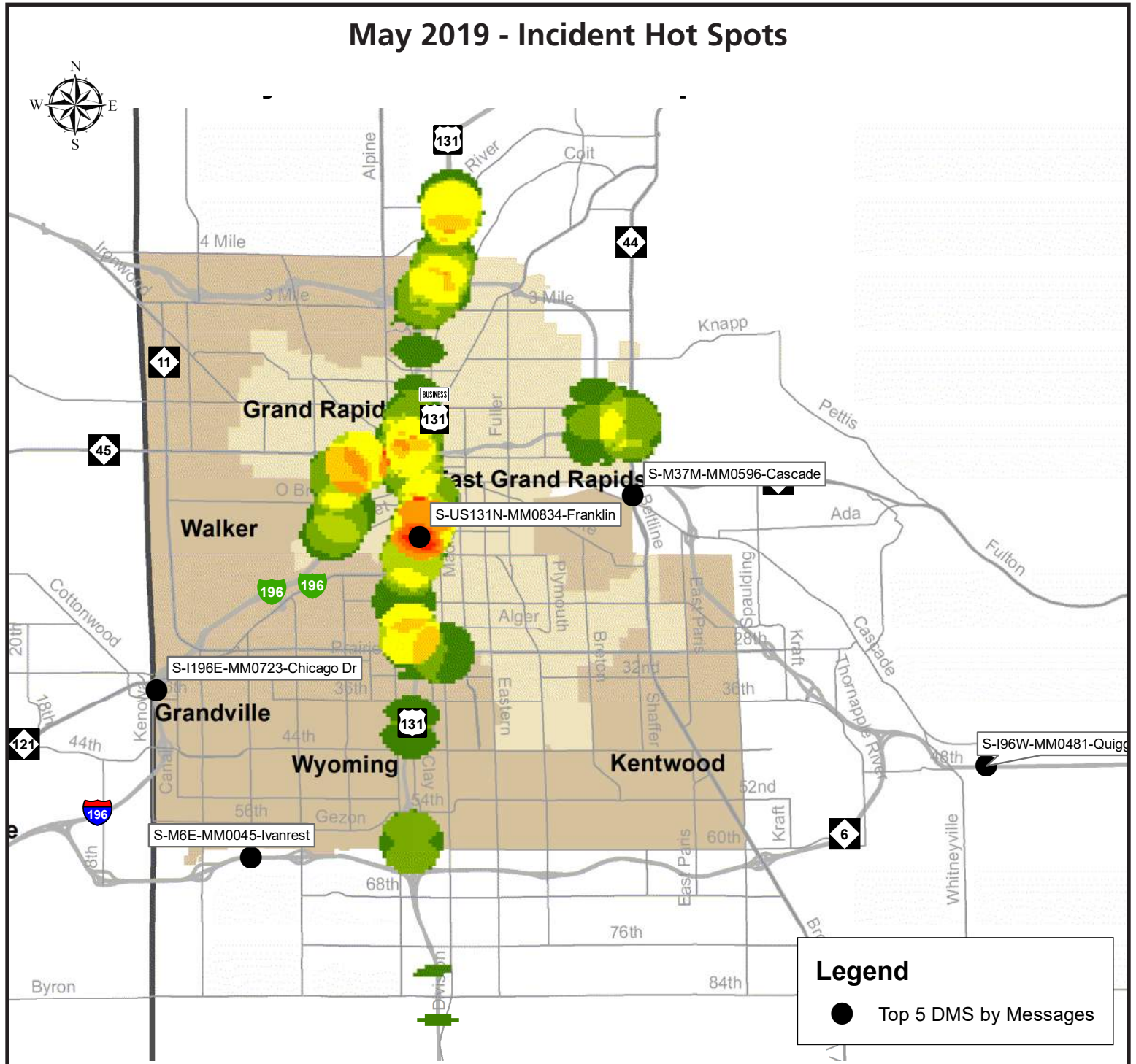

May 2019 - Incident Hot Spots

Figure 10